REMARKS/ARGUMENTS

The Office action dated December 22, 2004, and the references cited therein have been received and carefully reviewed.

Claims 20, 23-27, 32, 34-36, 39, 41, and 42 are rejected under 35 U.S.C. 102(b) as being anticipated by Kieninger '771. Claim 19 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Kieninger '771 in view of Kieninger '763. Claims 28-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kieninger '771. Claims 31 and 33 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Kieninger '771 in view of Gupta. Claim 40 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Kieninger '771 in view of Allemann. Claims 21, 22, 37 and 38 remain allowable if rewritten in independent form. In connection with the rejected claims, Applicants respectfully submit that the prior art references do not teach or suggest the invention as now claimed and provide the following remarks in favor of the patentability of those rejected claims.

By the above amendments, claim 41 has been amended to include substantially the limitations of claims 25, 27, 30, and 34, and to further include the cutting insert being made of one piece, and that the clamping wedge bore (230) on the periphery is angularly offset with respect to the cutting insert receiving bore (220). Claims 25, 27, 30, and 34 have been canceled without prejudice or disclaimer. No new matter has been added. Support for this amendment is found in the specification at, for example, Figure

18. Both limbs 252, 254, of the cutting insert 250 are clearly seen in Figure 18 and Figure 24 being made of one piece. Moreover, support for the wedge bore 230 being angularly offset is found in the English language translation of the specification on page 16, first paragraph. No new matter has been added.

As the examiner is aware, the milling head in accordance with the claimed invention is designed and used for high speed applications. In such cases, the centrifugal forces are very high and effective measures have to be taken in order to provide sufficient safeguards for protecting the personnel working with the tool. In particular, measures have to be taken in order to prevent catapulting any loose parts radially outwardly, should any screw of the milling head break, and further stop the fixing elements of the milling head, such as, the cutting inserts.

Once the number of parts is reduced, the danger of the additional fixing means breaking is also reduced. Moreover, the positive fit (form fit) reduces or avoids the necessity of a mere frictional connection. The cutting insert and also the clamping element each are received in a positive fit (form fit), e.g. see Fig. 25 concerning the part 270' resp. the inclination showing the positive fit. This positive fit is one of the measures for safely keeping the parts in the milling head instead of swirling away when the clamping force is loosened. The positive fit arrangement is accompanied by large openings in the basic body and becoming unnecessary because the clamping wedges and elements are not needed in such numbers as it is necessary for frictional fit mountings. The clamping elements are only needed to fix (hold)

the parts rather than securing them by the clamping elements only.

Applicants provide further clarifying comments below regarding the limitations added to claim 41 which distinguish that claim from the prior art.

Providing the cutting insert in one piece saves additional parts and additional clamping, coupling, screw or similar fastening means. The danger of such fastening means breaking and then at least one part of the cutting insert getting loose is also reduced. Moreover, the L-shape is advantageous for fastening and adjusting purposes and therefore preferred by the cited milling head.

Another main advantage of the milling head according to the present invention is that the positioning of the parts results in an already better function. This is evident by the angular offset of the bores of the cutting insert and of the clamping element. Because of the insertion directions the clamping effect increases with increasing speed and during the cutting operation, the parts won't become loosened (see the English language translation of the specification on page 17, end of second complete paragraph). This offset can be best seen in Fig. 19, direction of recess 230 and of recess 224. It also can be seen in Fig. 23 (cutting insert is not perfectly circular, or it is at an angle) and Fig. 25 which illustrates the mounting of the parts. The clamping element has an inclination and the cutting element is positioned at an inclination.

The inclination worked in the cutting insert best can be seen in Figures 18 and 23. It also serves the purpose to clamp the

parts in such a manner that centrifugal force causes the clamping to get even stronger so that the cutting insert becomes even more secured in the basic body if the cutting insert gets loose. The clamping element presses the cutting element against the engagement surface at higher speeds.

The inclination worked in the clamping element has a similar object. Both inclinations result in a wedging/clamping effect. The smaller inclination angle of the clamping element results in an inward pressure. However, the latter effect also can be attained by arranging the direction of the hole of the cutting insert. The clamping of the clamping element and of the cutting insert result in a positive fit.

The differential screw allows an adjustment in both directions, i.e. plus/minus. The range of the adjustment is 0 to 2/10 mm.

Figure 23 best illustrates the function and arrangement of the parts, namely, the angle of the bores, the inclination of the clamping element, and the L-shape of the cutting insert.

This milling tool of '771 is not designed for use for high speed applications. That tool has large cutouts at the periphery (see column 1, first paragraph). Namely, the cutouts are disposed in the region of the outer periphery and are open to the front face of the base member 1.

The recesses 220 in the base member for the cutting inserts are essentially made of a bore 222 which is coaxial with the axis of the base member 210 and of a recess 224 which extends radially outwardly. The '771 reference does not teach or suggest a cutting

insert that is made of one piece. Instead, it comprises three different parts 6, 4, and 36 that all have to be fastened and secured.

Moreover, the supporting body 36 is not mounted in a positive fit. Two clamping members 52, 53 are provided for clamping supporting member 36, see Fig. 9. The clamping members 52, 53 are fastened together by a screw 51, see Fig. 9. They have a radius for engagement with the supporting body 36. The radius does not represent a form fit, and only the shape is adapted for a better force application. Moreover, parts 36 and 4 are screwed together by a screw 43, see Fig. 4. Therefore, as a result of these many parts and because of the "open" positioning of them in open cutouts, the milling head cannot be used for high speed applications.

Moreover, the screw 49 is provided for adjustment in a lengthwise direction against the force of the disc spring stack 45. The screw is inclined with respect to the part 36, at an angle of approximately 20 degs. inwardly. Therefore, the screw cannot be a differential screw, and it can exert force only in one direction, wherein the force in the other direction is effected by the springs.

Moreover, the radial adjustment range is 1 to 2 mm by means of screws (stud screws) 24, 25, cf. 0 to 2/10 mm in the milling head according to the invention. Screws 24, 25 do not effect an adjustment of the cutting insert as such but do turn the cutting plate spacer 11, see column 6, lines 41-67.

Also, Figure 6 shows the inclination from the open to the

outside (wedge surface 64). This is clearly no positive fit, but rather a frictional fit. However, in case of breaking of the parts, they are thrown outwardly. In view of the foregoing, Applicants respectfully submit that amended claim 41 and other dependent claims are patentable over the prior art.

Each issue raised in the Office Action dated December 22, 2004, has been addressed and it is believed that claims 19-24, 26, 28-29, 31-33, and 35-42 are in condition for allowance. Wherefore, issuance of a timely Notice of Allowance is earnestly solicited.

Respectfully submitted,
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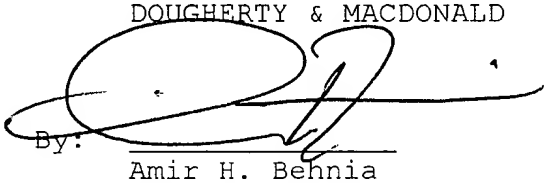

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